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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,517	04/12/2004	Yuan-Sheng Tyan	87804RLO	3334

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EXAMINER

ARTMAN, THOMAS R

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/822,517

Applicant(s)

TYAN ET AL.

Examiner

Thomas R. Artman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/12/2004; 11/14/2004</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on April 12<sup>th</sup>, 2004, and November 14<sup>th</sup>, 2005, are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. Please see the attached corresponding PTO-1449 forms with the examiner's initials, signature and date considered.

### ***Drawings***

The drawings were received on February 24<sup>th</sup>, 2006. These drawings are accepted by the examiner.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroyuki (JP 2002-100483).**

The Examiner notes that all references to specific line numbers are drawn to the English translation of JP-2002-100483.

Re claims 1,10,11,12,20 and 21: Hiroyuki discloses, in figure 1 and throughout the disclosure, an OLED device comprising:

- a substrate (11);
- a first electrode layer (12a) disposed over the first electrode layer;
- an inorganic short reduction layer (12b) disposed over the inorganic short reduction layer;
- a charge injection layer (13) disposed over the inorganic short reduction layer;
- an organic EL element (14) disposed over the charge injection layer; and
- a charge injection layer (15) disposed over the organic EL element;
- a second electrode layer (16) over the organic EL element,
  - wherein the short reduction layer is selected to have a thickness and a resistivity sufficient to reduce the leakage current and the associated loss of emission efficiency due to shorting defects (Detailed Description, paragraph 24, lines 1-4).

Re claims 11 and 20: Hiroyuki discloses the use of IXO for the inorganic short reduction layer. This material is considered to have a through-thickness resistivity as required by these claims.

Re claim 2: Hiroyuki discloses, in figure 1 and throughout the disclosure, the first electrode layer is an anode (12).

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Re claims 3,13 and 22: Hiroyuki discloses the short reduction layer to be selected from indium oxide, gallium oxide, zinc oxide, tin oxide, molybdenum oxide, vanadium oxide, antimony oxide, bismuth oxide, rhenium oxide, tantalum oxide, tungsten oxide, niobium oxide, or nickel oxide (Detailed Description, paragraph 24, line 4).

Re claims 4,14 and 23: Hiroyuki discloses the short reduction layer being a mixture of at least two of the listed oxides (Detailed Description, paragraph 24, line 4).

Re claims 5,15 and 24: Hiroyuki discloses the short reduction layer being a mixture of at least one of the listed oxide materials, and an electrically insulating oxide, fluoride, nitride or sulfide material (Detailed Description, paragraph 24, line 4).

Re claims 6,16 and 25: Hiroyuki discloses one of the two electrode layers is a transparent conductive oxide layer (Detailed Description, paragraph 24, line 2) and the other electrode is metallic (Detailed Description, paragraph 5, lines 3-4).

Re claims 7,17 and 26: Hiroyuki discloses both electrode layers are metallic and at least one of the two electrode layers is semitransparent to the emitted light (Detailed Description, paragraph 3, lines 2-3 and paragraph 5, lines 3-4).

Re claims 8,9,18,19,27 and 28: Hiroyuki discloses the short reduction layer to be between 20nm and 200nm in thickness (Detailed Description, paragraph 24, line 2).

***Response to Arguments***

Applicant's arguments filed February 24<sup>th</sup>, 2006, have been fully considered but they are not persuasive. Applicants assert that Hiroyuki does not teach the limitation of claims 1 and 10, that require that the inorganic short reduction layer is selected for having properties sufficient to reduce leakage current and associated emission efficiency losses due to shorting effects. The examiner respectfully disagrees.

As the above rejection maintains, and as Applicants have pointed out, the inorganic short reduction layer of Hiroyuki falls within the claimed ranges of thickness, materials and resistivities, and is placed over the crystalline electrode layer in order to provide a flat, homogenous surface which reduces the above claimed problems by covering any surface non-uniformities of the crystalline electrode layer below.

Applicants assert that Hiroyuki does not teach other shorting effects that the layer needs to address. This may or may not be true; however, it is the examiner's position that the claim language does not require such teachings. In fact, no such teaching is required at all: as long as the layer meets the structural requirements and the relationships with the remaining layers, then it inherently performs the function. Furthermore, as stated above and as recognized by Applicants, Hiroyuki does provide a teaching or suggestion that the inorganic short reduction layer does in fact reduce at least one shortage effect.

Therefore, the claims are anticipated by Hiroyuki, and the rejection has been maintained.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R. Artman whose telephone number is (571) 272-2485. The examiner can normally be reached on 9am - 5:30pm Monday - Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas R. Artman  
Patent Examiner

*TR Artman*  
2/12/06

  
EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER